

Cryptocurrencies – Mining Activities

Extract, IFRS® Discussion Group Report on the Meeting – June 21, 2018

At its January 2018 meeting, the Group discussed the accounting for investments in decentralized digital currencies (also referred to as “cryptocurrencies”). At this meeting, the Group discussed various accounting issues related to the mining or validation of a cryptocurrency.

A blockchain is a distributed digital ledger that is used to record transactions over a network of participating computers. The ledger tracks the creation and transfer of cryptocurrencies and other crypto-assets between two parties using their online addresses. Individuals and entities (also referred to as “miners” or “validators”) solve blockchain algorithms to verify the transaction data occurring between the two parties or to increase the overall supply of cryptocurrencies in circulation. Solving blockchain algorithms may involve the use of large amounts of computing power.

Blockchain technology operates using either a “proof-of-work” or a “proof-of-stake” system that determines how the miner or validator is selected to create a new block and how it will be rewarded for maintaining the distributed ledger. Each of these systems is described more fully below:

- **Proof of work** – In this system, miners in the blockchain network compete against each other to solve the cryptographic hash function to validate the transaction and create a new block in the blockchain. The miner who completes this work first is compensated with transaction fees and a predetermined number of newly created cryptocurrency (referred to as “block reward”). Miners are offered the block reward because typically the transaction fees alone are not enough to compensate the miners for the significant hardware and electricity costs involved in solving blockchain algorithms.
- **Proof of stake** – In this system, typically no new cryptocurrencies are created because they have been pre-mined and the total supply is already in circulation. As a result, validators in the blockchain network are selected to validate transactions and create a new block in the blockchain based on the proportion of cryptocurrencies held and staked against the total amount staked by all those in the network. The validator earns transaction fees for validating the block. If the selected validator authenticates a fraudulent transaction or does not complete the validation, it forfeits a portion of its initial stake. The computing power is a lot less compared to a proof-of-work system because only one validator is involved. There is no need to compete to solve the algorithm, and therefore, validators require a lower return.

For discussion purposes, the Group focused on miners and validators that have a right to transfer the crypto-assets they hold to another party. These crypto-assets are in the form of a virtual currency whose value in fiat currency is driven by market sentiment and the perceived value of the crypto-asset. There are other types of crypto-assets that may bear different rights.

Issue 1: Can the transaction fees earned by cryptocurrency miners and validators be recognized as revenue?

View 1A – The transaction fees earned can be recognized as revenue.

The first step in the revenue recognition model in IFRS 15 *Revenue from Contracts with Customers* is to identify whether there is a contract with a customer. Although there is no explicit contract between the miner or validator and the party initiating the transaction because of the nature of the blockchain network, there is a common understanding that the miner or validator solving the algorithm and creating the new block is entitled to a transaction fee.

Proponents of this view note that the transaction fee is stipulated when the party initiating the transaction requests its validation. The transactions fees are paid in the form of a transfer of cryptocurrency. At the point in time when a new block is created, the performance obligation of the miner or validator is satisfied. Therefore, revenue may be recognized at this time because the miner or validator becomes unconditionally entitled to receive the transaction fee. Paragraph 66 of IFRS 15 indicates that when the consideration received is in a form other than cash, the entity should measure the non-cash consideration at fair value.

View 1B – The transactions fees earned cannot be recognized as revenue.

Proponents of this view think that since there is no explicit contract between the party initiating the transaction and the miner or validator who verifies the transaction, IFRS 15 does not apply. Any inflows of economic resources would not be described as revenue.

The Group's Discussion

Most Group members were of the view that the transaction fees earned can be recognized as revenue (i.e., View 1A) on the basis that the work performed is in the ordinary course of business for cryptocurrency miners and validators. The act of solving the algorithm and creating the new blocks requires a large amount of electricity and computer hardware; therefore, it is typically regarded as more than a casual investment for an entity to operate this business.

One Group member noted that although there is no formal contract between the customer and the miner or validator, the miner or validator has an implied enforceable right to receive compensation when it performs the work for the customer. Another Group member thought that when considering the accounting for the miner's compensation, the transaction fee and the block reward should be bifurcated. This Group member noted that the value proposition for the miner's work lies with obtaining the block reward because of the value ascribed to cryptocurrencies like Bitcoin. Therefore, the block reward could be viewed separately from the transaction fee in determining the appropriate accounting.

Issue 2: Can the reward of a newly created cryptocurrency (i.e., block reward) resulting from the creation and closing of each new block in the blockchain be recognized as revenue?

In a proof-of-stake system, the cryptocurrencies have typically been pre-mined and the total supply is already in circulation. Therefore, validators do not earn a block reward.

In a proof-of-work system, the accounting considerations will differ based on whether the miners run a core node (referred to as “solo mining”) or contribute computing power to a pool of many miners (or “pool mining”). In general, pooled computing power results in a higher probability of solving the cryptographic hash function.

Solo Mining

View 2.1A – The block reward can be recognized as revenue.

Proponents of this view think that there is an implied contract between all the participants in the blockchain. These participants have a shared understanding that the next miner to create a block will be awarded new cryptocurrencies. This understanding suggests that the customer is the entire community participating in the blockchain, and therefore, the block reward could be recognized as revenue.

View 2.1B – The block reward cannot be recognized as revenue.

Proponents of this view note that IFRS 15 can only be applied if the counterparty to the contract is a customer. There is no direct relationship between a customer and the miner when a block is created and the block reward is generated. As a result, there are no enforceable rights and obligations that may be enforced against any individually identifiable party.

Proponents note that under View 1A of Issue 1, there is a clearly identifiable customer who is paying the transaction fee (i.e., party initiating the transaction) when the block is created. However, with a block reward, there is never a clearly identifiable customer paying the block reward even when the block is created.

Pool Mining

View 2.2A – The block reward can be recognized as revenue.

Miners in a pool will generally contract through standardized terms and conditions with pool operators. These miners pay an administration fee to the pool operator and the fees paid may differ depending on the amount of risk taken on by the pool operator. The payout formula to the miners for each pool may also vary.

Proponents of this view think that because there is a contract between the miner and the pool operator under which the miner provides computing power in return for a share of the rewards of the entire pool, the payout from the pool can be regarded as revenue in accordance with IFRS 15. In a pool-mining situation, the amount the pool miner expects to receive is variable until such time as a block has been created by the pool.

It may be necessary for an entity to apply the two-step approach in IFRS 15 to determine the amount of revenue to recognize because there is uncertainty about whether the computing power contributed will result in a solved block. An entity should apply the guidance on variable consideration to determine an estimate and then apply the guidance on revenue constraints.

View 2.2B – The block reward cannot be recognized as revenue.

Proponents of this view think that a pooling arrangement may essentially be a form of joint arrangement among the solo miners. It is difficult to conclude that there is a contract to provide services to a pool. Instead, the arrangement is more like the sharing of the block reward among joint venturers. If there is no contract that meets the requirements in paragraph 9 of IFRS 15, revenue cannot be recognized for the block reward.

Issue 3: If the block reward is not recognized as revenue under IFRS 15, how should a miner account for the block reward?

View 3A – Recognize the block reward as other income.

Proponents of this view think that the block reward may be recognized as other income because the newly created cryptocurrency represents an inflow of economic benefits in the form of an increase in assets. This view is predicated on the fact that the newly created cryptocurrency can be reliably measured.

View 3B – Recognize the block reward as an internally generated intangible asset.

Under this view, a miner should consider paragraph 57 of IAS 38 *Intangible Assets* in determining how to account for the block reward. The miner is incurring costs to build, or mine, a cryptocurrency, which is considered an internally generated intangible asset. No revenue or gain is recognized until the resulting cryptocurrency is sold.

However, proponents of this view note that it may be difficult to identify and attribute the costs incurred to create the block reward separately from the costs incurred on all previous unsuccessful attempts to create the next block, given the competitive nature of the mining activity. This consideration could affect whether the block reward is an internally generated intangible asset.

The Group's Discussion

The Group discussed Issues 2 and 3 together.

The Group first discussed solo mining. A Group member noted that until the block reward (i.e., the newly created cryptocurrency) received can be monetized, it is challenging to consider it as revenue. Some entities receiving a block reward may trade the cryptocurrency on exchanges and monetize it into a fiat currency if there is a market for that particular cryptocurrency. Other entities may hold the cryptocurrency with the view that it could eventually be used to pay for goods and services. For example, some vendors currently accept Bitcoin as payment for their products. The value of cryptocurrency comes from the trust of the holders who believe it has value.

Some Group members noted that miners and validators are creating a transaction record in the digital ledger. The transaction record ensures that the same cryptocurrency cannot be transferred to multiple people within the network. Therefore, the miners and validators provide the security that underpins the transfer by solving the algorithm and creating the next block in the blockchain. One could take the view that the miners and validators are providing a service.

One Group member noted that paragraph BC187 in the Basis for Conclusions on IFRS 15 states, in part, that “the amounts to which the entity has rights under the present contract can be paid by any party (ie not only by the customer).” The paragraph uses the healthcare industry as an example of how an entity may determine the transaction price based on amounts paid by the patient, insurance company and/or a governmental organization. Therefore, by analogy, the question becomes whether it is critical to know who is paying the block reward as contemplated under View 2.1B.

Several Group members thought the key question on this issue is whether the block reward is considered a reward for an activity that the entity has performed, or something being created because of the activity. If the latter, the block reward is not revenue or income, but rather, an asset (i.e., which moves the discussion to Issue 3). Alternatively, if the block reward is a reward for an activity performed, then the question becomes whether it is revenue or other income of some sort. The lack of an enforceable right to collect the block reward from another party makes it more challenging to recognize it as revenue.

One Group member thought that this issue was more like a scope issue in terms of whether the inventory or revenue standard applies. One of the challenges with IFRS 15 is that the standard mainly focuses on a contract between two parties, when with cryptocurrency mining, there is a network of participating computers involved. Another Group member pointed out that with a cryptocurrency like Bitcoin, the underlying coding is a pre-programmed set of rules that functions autonomously and is coordinated through a distributed consensus protocol via the blockchain. This concept is referred to as a “decentralized autonomous organization.” The miners and validators are like auditors checking against that coding and running that blockchain protocol to earn a reward. This decentralized concept makes it more challenging to fit into the two-party revenue model underlying IFRS 15.

In terms of pooled mining, most Group members thought similar questions and observations would apply. One Group member thought that having a pool operator might make the identification of a customer in the transaction easier, as the miners are providing the operator the computing power needed to perform the mining activity.

Several Group members observed that activities in the new world economy do not fit nicely into current accounting standards, and that judgment is needed to determine the appropriate accounting.

A representative of the Canadian Securities Administrators noted seeing reporting issuers taking the approach of recognizing revenue in this area, and expressed the view that it is important that there is clarity in the markets on the accounting for transaction fees and block rewards earned.

Overall, the Group recommended monitoring the IASB's discussions on the topic of cryptocurrencies. The IASB will likely be discussing whether any work should be undertaken in this area at its July 2018 meeting. The Group recommended revisiting this topic at its next meeting in October 2018, to discuss any new developments as well as the deferred issue of whether there is an active market as defined in IFRS 13 *Fair Value Measurement* that allows measurement of cryptocurrencies at fair value.

(For a full understanding of the discussions and views expressed, listen to the [audio clip](#)).